



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,485	08/20/2003	Peter J. Skalchunes	50572-28771	7394

7590 06/21/2005

Goran P. Stojkovich  
Kilpatrick Stockton LLP  
1001 West Fourth Street  
Winston-Salem, NC 27101

EXAMINER

DAVIS, OCTAVIA L

ART UNIT PAPER NUMBER

2855

DATE MAILED: 06/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/644,485

Applicant(s)

SKALCHUNES, PETER J.

Examiner

Octavia Davis

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2005.  
2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-32 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 20 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4, 5, 16 - 18, 20, 27, 29 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ingle et al in view of Cohen.

Regarding claims 1, 2, 4, 16 - 18, 27 and 32, Ingle et al disclose an optical fiber break detection system comprising a detector 26 including an acoustic sensor 26, a light source 34 operable to generate a light beam, a first fiber optic cable 12 comprising proximate and distal ends 14,16 wherein the proximate end 14 is in communication with the light source (See Cols. 3, lines 35 - 49) but does not disclose the distal end of the optical cable in communication with an emitter and the receiver comprising a second fiber optic cable comprising proximate and distal ends, the proximate end of the second fiber optic cable in communication with a receiver and the distal end of the second fiber optic cable in communication with the sensor, the receiving lens disposed in facing opposition to the emitter lens. However, Cohen discloses an embedded wear sensor comprising an optical fiber cable bundle 34 including a light emitter 46 connected to a first end of the cable and a light receiver 48 connected at a second end of the cable, wherein a second optical cable 36 is in communication with the receiver 48 and a sensor 60 which includes a first end and a second end (See Cols. 6 - 8, lines 63 - 67, 1 - 19 and 21 - 41).

Art Unit: 2855

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ingle et al in view of Cohen for the purpose of, providing an embedded fiber optic wear sensor to more accurately measure bearing wear down thus permitting better predictions on when machinery must be serviced (See Cohen, Col. 2, lines 29 – 33).

Regarding claims 5, 20 and 29, in Cohen, the receiving means 48 is operable to focus the light beam on a surface of the proximate end of the second fiber optic cable 36 (See Col. 7, lines 15 – 19).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 12 – 15, 19 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ingle et al and Cohen, as applied to claims 1, 2, 4, 5, 16-18, 20, 27, 29 and 32 above, and further in view of Sick.

Regarding claims 3, 12, 19 and 28, Ingle et al and Cohen disclose all of the limitations of these claims except for a teaching that the receiving lens comprises a diameter, the diameter substantially equal to or less than a diameter of a thread disposed in the textile sewing apparatus.

However, Sick discloses a laser beam scanning device for monitoring thread breakage in tufting machines comprising a receiving lens 23 comprises a diameter, the diameter substantially equal to or less than a diameter of a thread 20 disposed in the machine 31 (See Col. 4, lines 22 – 30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ingle et al and Cohen according to teachings of Sick, for the purpose of, ensuring that the arrangement of the lens is hardly disturbing by making the lens very narrow and small in height in correspondence with the scanning beam (See Sick, Col. 2, lines 57 – 61).

Regarding claims 13 - 15, Ingle et al and Cohen disclose all of the limitations of these claims except for a teaching that the textile sewing apparatus comprises a carpet tufting apparatus comprising a yarn guide plate and a needle bar. However, in Sick, the apparatus comprises a carpet tufting apparatus 15 comprising a yarn guide plate and a needle bar 13, 13' wherein the emitter 42 is disposed at a second end of the yarn guide plate 27 and the needle bar (See Col. 3, lines 31 – 47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ingle et al and Cohen according to teachings of Sick, for the purpose of, providing an optical apparatus capable of being arranged at a location which is remote from the row of needles and that is readily available to accommodate the laser beam scanning device (See Sick, Col. 1, lines 37 – 44).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2855

6. Claims 6 – 11, 21 – 26, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ingle et al, Cohen and Sick, as applied to claims 1 - 5, 12 – 20 and 27 – 29 above, and further in view of Kothe et al.

Regarding claims 6, 8, 21, 23 and 30, Ingle et al, Cohen and Sick disclose all of the limitations of these claims except for a teaching that a first processor and a second processor are provided, the first processor being in communication with the light source, the detector, and the second processor, the second processor being operable to control the textile sewing apparatus. However, Kothe et al disclose a sensor system for regulating machines comprising controllers 22, 23 in communication with a light source 16 (See Col. 3, lines 11 – 22).

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Ingle et al, Cohen and Sick according to the teachings of Kothe et al for the purpose of, independently adjusting the sensitivity of the evaluating stage based on the respective properties of the material to determine certain edge identification of the material (See Kothe et al, Col. 1, lines 32 - 40).

Regarding claims 7 and 22, the second processor 23 comprises a relay.

Regarding claims 9 – 11, 24 – 26 and 31, Ingle et al, Cohen and Sick lack the first processor being operable to associate a first value with a quantity of light emitted from an emitter and to associate a second value with a quantity of light received by a receiver and comparing the first and second values. However, in Kothe et al, a comparator 21 is provided which includes an adjustable switching threshold of which the control members 22, 23 adjust (See Cols. 3 and 5, lines 10 – 13 and 1 – 5).

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Ingle et al, Cohen and Sick according to the teachings of Kothe et al for the

purpose of, comparing a stepwise coarse sensitivity adjustment to a fine sensitivity adjustment (See Kothe et al, Col.2, lines 11 – 16).

***Response to Arguments***

7. Applicant's arguments filed 4/15/05 have been fully considered but they are not persuasive. In response to applicant's arguments that the references do not disclose "a second fiber optical cable comprising proximate and distal ends, the proximate end of the second fiber optic cable in communication with the receiving lens and the distal end of the second fiber optic cable in communication with the sensor" and that Sick et al do not disclose "the use of fiber optic cables for detecting thread breakage", it is the examiner's position that in Cohen, the fiber optic bundle 36 can be considered in various portions or segments thereof and includes a plurality of optical fibers 34 (See Col. 5, lines 60 – 67, See Fig. 1), the bundle includes incoming bundle segment 36a, engagement bundle segment 36b and outgoing bundle segment 36c, each of the segments constituting optical fiber segments having two ends that are in communication with the light source 46, the light receptor 48 and the sensor 60 that is situated in a wear surface 26 of bearing liner 24 (See Figs. 3 and 5). With respect to "the use of fiber optic cables for detecting thread breakage", the claim limitations include "a thread breakage detection apparatus" and Sick discloses an optical apparatus for monitoring thread breakage, thus the references still stand.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the

Art Unit: 2855

THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

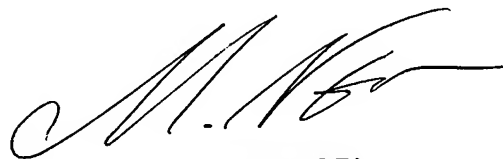
8. Any inquiry concerning this communication should be directed to Examiner Octavia Davis at telephone number (571) 272 - 2176. The examiner can normally be reached on Monday - Thursdays (9:00 - 5:00), Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz, can be reached on (571) 272 - 2180. The fax phone number for the organization where this application where this application or proceeding is assigned is (703) 872 - 9306.

OD

OD/2855

6/16/05



**MAX NOORI**  
**PRIMARY EXAMINER**